

REMARKS

Reconsideration of the present application in view of the above amendments and the presently filed declaration is respectively requested.

I. STATUS OF THE CLAIMS

Claims 54, 55, 60 – 65, 69, 76 – 79, 81, 82, 85, 86, 91 - 129 are now pending in the present application. Claims 1 – 53, 56 – 59, 66 – 68, 70 -75, 78, 80, 83 – 84, and 87 – 90 have been canceled. Claims 54, 62 - 64, 81, 82, 85, 86, 91, and 92 have been amended. New claims 100 - 129 have been added.

Support for the amendments and for the new claims can be found throughout the present specification and more specifically as follows.

Support for the amendment to claim 54 relating to the absence of substantial acute toxicity in compounds such as HFO-1234yf is found on page 6, lines 25 – 31.

Support for the amendment to claim 64 relating to the preferred compound(s) being present in amounts of at least about 5% by weight is found on page 9, lines 13 – 18.

Support for the amendment to claim 81 relating to the preferred compound(s) being present in amounts of at least about 70% by weight is found on page 8, lines 19 – 24.

Support for the amendment to claim 82 relating to compatibilizers being propane, butanes and pentanes is found on page 9, lines 1 – 3.

Support for new claim 129, which depends from claim 54, is found on page 9, lines 13 – 18.

Support for the new independent claim 100, which is directed to HFO-1225ye, is found throughout the application as originally filed and in particular on page 6, lines 25 – 31.

Support for the new dependent claim 101 directed to GWP is found on page 8, line 8 and elsewhere throughout the application as originally filed.

Support for the new dependent claims 102 -104 directed to lubricants and

compatibilizers is found on pages 8 and 9, and elsewhere throughout the application as originally filed.

Support for the new dependent claim 105 directed to polyols and polyol premixes is found on page 12 and in the original claims, including original claim 28, and elsewhere throughout the application as originally filed.

Support for the new dependent claims 106 and 107 relating to the preferred compound(s) being present in amounts of at least about 5% by weight and 10% by weight is found on page 9, lines 13 – 18.

Support for the new dependent claim 108 relating to sterilant is found on pages 15 and 16, and elsewhere throughout the application as originally filed.

Support for the new dependent claim 109 relating to the composition being non-flammable is found throughout the application as originally filed.

Support for the new dependent claims 110 - 112 directed to GWPs and ODPs is found on page 8, line 4 – 16 and elsewhere throughout the application as originally filed.

Support for the new dependent claim 113 relating to the preferred compound(s) being present in amounts of at least about 70% by weight is found on page 8, lines 19 – 24.

Support for the new dependent claim 114 and 115 relating to compatibilizers and percentages is found on page 9, lines 1 – 3.

Support for the new dependent claim 116 relating to sterilants is found on pages 15 and 16, and elsewhere throughout the application as originally filed.

Support for the new dependent claims 117 and 118 relating to percentages is found on page 8, lines 19 – 24, and elsewhere throughout the application as originally filed.

Support for the new dependent claims 117 – 125 relating to various aspects of compositions including lubricants and solubilizers and related properties is found at page 8, line 25 – page 9, line 9 and in Examples 2 and 3 on pages 18 and 19.

Support for the new dependent claims 126 - 128 relating to isomeric forms

of HFO-1225ye is found at page 6, lines 25 - 30.

II. RESPONSE TO THE OUTSTANDING OFFICE ACTION

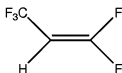
In the outstanding office action, the Examiner rejected the pending claims under 35 U.S.C. 103(a) as being unpatentable over Smits et al. (US 4,945,119) or over Smits in view of Nimitz et al. (US 5,674,451). In making this rejection, the Examiner took the position that the previously submitted Declaration under 37 CFR 1.132 filed on June 25, 2007 was insufficient to overcome the rejection based on Smits et al. alone or in view of Nimitz et al. It was the Examiner's positions that the declaration was not commensurate in scope with the claims pending in the application at that time.

Applicants do not necessarily agree with the Examiner's position that the declaration filed on June 25, 2007 is not sufficient to support patentability of the claims of the previously pending scope, and applicants expressly reserve the right to prosecute claims of a similar scope to those previously presented in an continuation or divisional application. Nevertheless, in order to facilitate prosecution of the present application, applicants have narrowed the scope of the pending claims and have submitted a further declaration in support of patentability.

The pending claims comprise two sets of claims. The first set is based on independent claim 1, which is directed to compositions having no substantial acute toxicity and which include as an essential component 1,1,1,2-tetrafluoropropene (HFO-1234yf). The second set of claims is based on independent claim 100, which is directed to compositions having no substantial acute toxicity and which include as an essential component 1,1,1,2,3-pentafluoropropene (HFO-1225ye). Each of these compounds share the characteristic of having a relatively low toxicity and each also shares the structural feature of have having at least one H on the unsaturated terminal carbon. As described in the present specification (see page 5, lines 15 -19), this

structural feature has been discovered by applicants to contribute to the low toxicity characteristics of the compounds which are essential components of the present claims and which therefore contribute to the low acute toxicity of the composition. There is no suggestion in the prior art of this feature or its advantages.

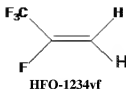
With respect to the first set of claims, applicants have found surprisingly that HFO-1234yf possesses a desirably low level of acute toxicity relative to structurally similar compounds. As described in the present application and as supplemented by the Rule 132 Declaration of George Rusch dated October 15, 2007 ("the Second Rusch Declaration"), toxicological testing of a compound known as HFO-1225zc (1,1,3,3,3- pentafluoropropene):



HFO-1225zc

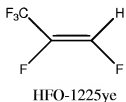
had been conducted by a third party prior to the filing of the present application. This testing revealed that this compound exhibited a relatively high level of toxicity. More specifically, the attached Second Rusch Declaration (see paragraph 2), revealed that HFO-1225zc had an LC50 or median lethal concentration required to kill half the members of a tested population, as low as 2,000 ppm. Since LC50 represents the concentration at which a measure of lethality occurs, the lower the value of LC50, the more toxic the material is considered to be, and the higher the value, the less toxic the material is considered to be. This toxic compound, which is otherwise structurally similar HFO-1234yf and HFO-1225ye, does not have at least one H on the unsaturated terminal carbon.

In contrast, HFO-1234yf, a structurally similar compound which is within the scope of claim 1 (2,3,3,3-tetrafluoropropene):



was found by applicants to be much less toxic than HFO-1225zc (see, for example, paragraphs 3 and 4 of the Second Rusch Declaration). More specifically, the LC50 of HFO-1234yf, which has two hydrogen atoms on the unsaturated terminal carbon, has a toxicity concentration that is **at least two hundred times greater** than that of HFO-1225zc. This difference is dramatic and is in no way suggested or expected in view of any of the prior art cited by the Examiner or any other art known to applicants. Furthermore, HFO-1234yf has the additional advantage of having a relative capacity of greater than 1, which is substantially greater than even the tetrafluoropropene isomer 1,3,3,3-tetrafluoropropene (HFO-1234ze). As seen from Table I on page 18 of the present specification, HFO-1234ze has a relative capacity (based on HFC-134a) of either 0.36 or 0.7, depending on the stereoisomeric form thereof, whereas HFO-1234yf has a relative capacity of 1.1, which is much superior in terms of performance as a drop-in replacement for the heretofore commonly used HFC-134a.

With respect to the second set of claims, applicants have also found surprisingly that HFO-1225ye (1,2,3,3,3-pentafluoropropene):



which is within the scope of claim 100, is much less toxic than HFO-1225zc (see, for example, paragraphs 3 and 4 of the Rusch Declaration filed on April 25,

2007). More specifically, the LC50 of HFO-1225ye, which is within the scope of claim 100 and which has one hydrogen on the unsaturated terminal carbon, has a toxicity concentration that is at least **one hundred and twenty five times greater** than that of HFO-1225zc, which is not within the scope of the claim 100. This difference is dramatic and is in no way suggested or expected in view of any of the prior art cited by the Examiner or any other art known to applicants.

II. CONCLUSION

Applicants believe that the claims as now pending patentably distinguish over the prior art of record, and an early notice thereof is hereby earnestly solicited. Should the Examiner have any questions regarding this further response, she is invited to contact the undersigned at the telephone number indicated below.

Respectfully submitted,

Date: 10/24/07

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